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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,129	09/20/2001	Osamu Yamaguchi	13409.6USWO	6292
23552	7590	11/14/2003		
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903				
EXAMINER				
SAVAGE, MATTHEW G				
ART UNIT		PAPER NUMBER		
1723				

DATE MAILED: 11/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,129

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Matthew O Savage

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 15-29 is/are pending in the application.
- 4a) Of the above claim(s) 6-12, 15-20, 24-27 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 21-23 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

The information disclosure statement filed on 8-28-03 has been considered. An initialed copy of the PTO 1449 is included herewith.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 21-23, and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The concept of forming both the first and second filtration layers from the strip of nonwoven having thermally bonded intersections in the case of the elected species is considered new matter.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 21, 22, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 5-2715 in view of U.S. Patent 6,090,731 to Pike et al and EP 313,920.

With respect to claim 1, as best understood, JP 5-2715 discloses a strip of nonwoven including a thermoplastic fiber obtained by bonding the fiber intersections, and arranging the strips to form a cylindrical form, a filtration layer including a first filtration layer 4 and a second filtration layer 3 including a nonwoven. JP '715 fails to specify the nonwoven being obtained by thermal bonding of at least part of the fiber intersections. Pike et al disclose a thermoplastic filament nonwoven obtained by thermal bonding of at least part of the fiber intersections (see example 1 in columns 10-11) and suggests that such an arrangement has high filtration efficiency and physical strength (see the lines 17-22 of col. 3). It would have been obvious to have modified the nonwoven of JP '715 so as to have included the nonwoven disclosed by Pike et al in order to provide a filtration material having high filtration efficiency and physical strength. JP '715 fails to specify the strip as being arranged in a twill form. EP '920 discloses the concept of winding a filter media in a twill form (see FIG. 3) and suggests that such a configuration prevents deformation of the media due to fluid pressure thereby enabling efficient removal of particles (see lines 25-33 of col. 6). It would have been obvious to have modified the combination suggested by JP '715 and Pike et al so as to have included the twill configuration as suggested by '920 in order to increase the filtration efficiency of the apparatus. '715 discloses a second filtration layer capable of removing particles of a smaller diameter than the first filtration layer since the fibers of

the second layer are finer than the fibers of the first layer. '715 fails to specify the initial 80% trapped particle diameter in the second filtration layer as being .05- .9 times as large as an initial 80% trapped particle diameter in the first filtration layer, however, such a modification would have been obvious in order to optimize the filter for a particular application (see In re Antonie, F.2d 618, 195 USPQ 6 (CCPA 1977)).

Concerning claim 2, '920 discloses a strip of non-woven turned into pleated matter having 4-50 pleats (see FIG.6).

As to claim 3, '920 discloses part of the pleats being arranged in a non-parallel manner (e.g., the adjacent sides of each pleat being non-parallel to each other, see FIG. 5).

Concerning claims 4-5, '715 and '920 fail to specify the recited void rates, however, such modifications would have been obvious in order to optimize the filter for a particular application (see In re Antonie, F.2d 618, 195 USPQ 6 (CCPA 1977)).

With respect to claim 21, Pike et al a thermoplastic fiber being a thermally adherant composite fiber that includes a low melting point resin and a high melting point resins, the difference in melting points as being 10 degrees C or more (see lines 18-21 of col. 4).

Concerning claim 22, Pike et al discloses the combination of linear low density polyethylene and polypropylene (see lines 58-59 of col. 4).

Concerning claim 28, '715 and '920 fail to specify the recited strip width and product of the width and mass per unit area values, however, such a modification would

have been obvious in order to optimize the filter for a particular application (see In re Antonie, F.2d 618, 195 USPQ 6 (CCPA 1977)).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 5-2715 in view of Pike et al and EP 313,920 as applied to claim 1 above, and further in view of U.S. Patent 5,652,041 to Buerger et al.

Pike et al discloses that it is known to thermally bond intersections of a nonwoven by calendaring (see lines 5-7 of col. 2) but fail to specify to intersections that are bonded by thermal compression by means of a heat embossing roll. Buerger et al that is conventional to carry out thermal bonding with heated embossing/calender rolls (see lines 18-23 of col. 6). It would have been obvious to have modified the combination suggested by JP '715, Pike et al, and '920 so as to have included thermal point bonding carried out by heat embossing rolls as suggested by Buerger et al in order provide a stronger filter media formed by a conventional point bonding process.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew O Savage whose telephone number is 703-308-3854. The examiner can normally be reached on Monday-Friday, 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda W. Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Matthew O Savage
Primary Examiner
Art Unit 1723

mos
November 7, 2003